

**Abstract**

5 A method of reducing systematic errors in grating writing in an optical waveguide, the method comprising the steps of a) numerically designing a theoretical test grating structure for desired spectral characteristics, b) writing a test grating structure experimentally and according to the theoretical test grating structure design, c) measuring the actual spectral characteristics of the test grating structure, d) reconstructing an actual design of the test grating structure from the actual spectral characteristics, and e) writing a compensated grating structure using a compensated design based on a comparison of the initial numerical design with the actual design of the test grating.